

# Material Safety Data Sheet

| HAZARD WARNINGS                                                                   | RISK PHRASES                                                                                                                                                 | PROTECTIVE CLOTHING                                                                 |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  | Combustible material; avoid heat and sources of ignition.<br>Corrosive to eyes and skin on contact.<br>Moisture sensitive material.<br>Store under nitrogen. |  |

## Section I. Chemical Product and Company Identification

|                  |                                        |                                                                                                                                                                                           |                                                                        |
|------------------|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| Chemical Name    | <b>Phenyl Chlorothionoformate</b>      |                                                                                                                                                                                           |                                                                        |
| Catalog Number   | P1236                                  | Supplier                                                                                                                                                                                  | TCI America<br>9211 N. Harborside St.<br>Portland OR<br>1-800-423-8616 |
| Synonym          | Chlorothionoformic Acid o-Phenyl Ester | <div style="border: 2px solid black; padding: 5px;"> In case of<br/>Emergency<br/>Call <b>Chemtrec®</b><br/><b>(800) 424-9300 (U.S.)</b><br/><b>(703) 527-3887 (International)</b> </div> |                                                                        |
| Chemical Formula | C <sub>7</sub> H <sub>5</sub> ClOS     |                                                                                                                                                                                           |                                                                        |
| CAS Number       | 1005-56-7                              |                                                                                                                                                                                           |                                                                        |

## Section II. Composition and Information on Ingredients

| Chemical Name              | CAS Number | Percent (%) | TLV/PEL        | Toxicology Data |
|----------------------------|------------|-------------|----------------|-----------------|
| Phenyl Chlorothionoformate | 1005-56-7  | 98% (GC)    | Not available. | Not available.  |

## Section III. Hazards Identification

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Acute Health Effects   | Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound. |
| Chronic Health Effects | <b>CARCINOGENIC EFFECTS</b> : Not available.<br><b>MUTAGENIC EFFECTS</b> : Not available.<br><b>TERATOGENIC EFFECTS</b> : Not available.<br><b>DEVELOPMENTAL TOXICITY</b> : Not available.<br>Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.                                                                                                                                        |

## Section IV. First Aid Measures

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Eye Contact  | Check for and remove any contact lenses. DO NOT use an eye ointment. Flush eyes with running water for a minimum of 15 minutes, occasionally lifting the upper and lower eyelids. Seek medical attention. Treat symptomatically and supportively.                                                                                                                                                                                                                                                                                                       |
| Skin Contact | If the chemical gets spilled on a clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical touches the victim's exposed skin, such as the hands: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Seek medical attention. Treat symptomatically and supportively. Wash any contaminated clothing before reusing. |
| Inhalation   | Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform artificial respiration. WARNING: It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention and, if possible, show the chemical label. Treat symptomatically and supportively.                                    |
| Ingestion    | DO NOT induce vomiting. Loosen tight clothing such as a collar, tie, belt, or waistband. If the victim is not breathing, administer artificial respiration. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Seek immediate medical attention and, if possible, show the chemical label. Treat symptomatically and supportively.                                                                             |

## Section V. Fire and Explosion Data

|                     |                                                                                                                                                                                         |                  |                |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------|
| Flammability        | Combustible.                                                                                                                                                                            | Auto-Ignition    | Not available. |
| Flash Points        | 81°C (177.8°F).                                                                                                                                                                         | Flammable Limits | Not available. |
| Combustion Products | These products are toxic carbon oxides (CO, CO <sub>2</sub> ), sulfur oxides (SO <sub>x</sub> ), halogenated compounds.<br>WARNING: Highly toxic HCl gas is produced during combustion. |                  |                |
| Fire Hazards        | No specific information is available regarding the flammability of this compound in the presence of various materials.                                                                  |                  |                |

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Emergency phone number (800) 424-9300

|                                      |                                                                                                                                                                                                                                                     |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Explosion Hazards                    | Risks of explosion of the product in presence of mechanical impact: Not available.<br>Risks of explosion of the product in presence of static discharge: Not available.<br>No additional information is available regarding the risks of explosion. |
| Fire Fighting Media and Instructions | SMALL FIRE: Use DRY chemicals, CO <sub>2</sub> , water spray or foam.<br>LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet.                                                                                                            |

## Section VI. Accidental Release Measures

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Spill Cleanup Instructions | Combustible material. Corrosive liquid.<br>Keep away from heat and sources of ignition. Mechanical exhaust required. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT get water inside container. DO NOT touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all sources of ignition. Consult federal, state, and/or local authorities for assistance on disposal. |
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## Section VII. Handling and Storage

|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Handling and Storage Information | COMBUSTIBLE. CORROSIVE. MOISTURE SENSITIVE. STORE UNDER NITROGEN. Keep container dry. Keep away from heat and sources of ignition. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry, cool place. Avoid excessive heat and light. DO NOT ingest. Do not breathe gas, fumes, vapor or spray. Avoid contact with eyes. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Treat symptomatically and supportively.<br>Always store away from incompatible compounds such as oxidizing agents, moisture. |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Section VIII. Exposure Controls/Personal Protection

|                      |                                                                                                                                                                                                                                                                                                                                          |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Engineering Controls | Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.                                                                                            |
| Personal Protection  | Face shield. Lab coat. Vapor respirator. Boots. Gloves. A MSHA/NIOSH approved respirator must be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.<br> |
| Exposure Limits      | Not available.                                                                                                                                                                                                                                                                                                                           |

## Section IX. Physical and Chemical Properties

|                       |                 |                       |                |
|-----------------------|-----------------|-----------------------|----------------|
| Physical state @ 20°C | Yellow liquid.  | Solubility            | Not available. |
| Specific Gravity      | 1.248           |                       |                |
| Molecular Weight      | 172.63          | Partition Coefficient | Not available. |
| Boiling Point         | 81-83°C @ 6mmHg | Vapor Pressure        | Not available. |
| Melting Point         | Not available.  | Vapor Density         | Not available. |
| Refractive Index      | Not available.  | Volatility            | Not available. |
| Critical Temperature  | Not available.  | Odor                  | Not available. |
| Viscosity             | Not available.  | Taste                 | Not available. |

## Section X. Stability and Reactivity Data

|                           |                                                                                                      |
|---------------------------|------------------------------------------------------------------------------------------------------|
| Stability                 | This material is stable if stored under proper conditions. (See Section VII for instructions)        |
| Conditions of Instability | Moisture sensitive. May decompose on exposure to moist air or water. Avoid excessive heat and light. |
| Incompatibilities         | Reactive with oxidizing agents, moisture.                                                            |

## Section XI. Toxicological Information

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RTECS Number          | Not available.                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Routes of Exposure    | Eye contact. Inhalation. Ingestion. Skin contact.                                                                                                                                                                                                                                                                                                                                                                                                  |
| Toxicity Data         | Not available.                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Chronic Toxic Effects | <b>CARCINOGENIC EFFECTS</b> : Not available.<br><b>MUTAGENIC EFFECTS</b> : Not available.<br><b>TERATOGENIC EFFECTS</b> : Not available.<br><b>DEVELOPMENTAL TOXICITY</b> Not available.<br>Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. |

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Acute Toxic Effects | Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound. |
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## Section XII. Ecological Information

|                    |                |
|--------------------|----------------|
| Ecotoxicity        | Not available. |
| Environmental Fate | Not available. |

## Section XIII. Disposal Considerations

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|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Waste Disposal | Recycle to process, if possible. Consult your local or regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state, and local regulations when disposing of this substance. |
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## Section XIV. Transport Information

|                      |                                                                                   |
|----------------------|-----------------------------------------------------------------------------------|
| DOT Classification   | DOT CLASS 8: Corrosive liquid.                                                    |
| PIN Number           | UN1760                                                                            |
| Proper Shipping Name | Corrosive liquids n.o.s.                                                          |
| Packing Group (PG)   | II                                                                                |
| DOT Pictograms       |  |

## Section XV. Other Regulatory Information and Pictograms

|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TSCA Chemical Inventory (EPA) | This product is <b>NOT</b> on the EPA Toxic Substances Control Act (TSCA) inventory. The following notices are required by 40 CFR 720.36 (C) for those products not on the inventory list:<br>(i) These products are supplied solely for use in research and development by or under the supervision of a technically qualified individual as defined in 40 CFR 720.0 et sec.<br>(ii) The health risks of these products have not been fully determined. Any information that is or becomes available will be supplied on an MSDS sheet. |
| WHMIS Classification (Canada) | WHMIS CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).<br>WHMIS CLASS D-2A: Material causing other toxic effects (VERY TOXIC).<br>WHMIS CLASS E: Corrosive liquid.                                                                                                                                                                                                                                                                                                                            |
| EINECS Number (EEC)           | 213-736-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| EEC Risk Statements           | R35- Causes severe burns.<br>R41- Risk of serious damage to eyes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Japanese Regulatory Data      | Not available.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

## Section XVI. Other Information

**Version 1.0**  
**Validated on 9/4/1997.**  
**Printed 3/19/2005.**

### Notice to Reader

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.